

## Studies in Malagasy Lauraceae II: New Taxa

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**ABSTRACT.** Eight new species of Lauraceae from Madagascar belonging to the genera *Beilschmiedia*, *Ocotea*, and *Potameia* are described and illustrated: *Beilschmiedia moratii*, *Ocotea grayi*, *O. longipedicellata*, *O. malcomberi*, *O. oligantha*, *O. sambiranensis*, *O. tsaratanensis*, and *Potameia micrantha*.

As a result of studies of older collections at P and of recent collections, eight new species of Lauraceae from Madagascar have been recognized. They are described and illustrated in this contribution. New treatments of the genera *Beilschmiedia*, *Ocotea*, and *Potameia* are near completion and will be part of an updated treatment of Lauraceae for the *Flore de Madagascar et des Comores*.

*Beilschmiedia* is represented in Madagascar by about ten species, all endemic. Two of those were first described in monotypic genera (*Thouvenotia* Danguy; *Bernieria* Baillon) but were placed by Kostermans (1939) with a few other species in *Apollonias*. Subsequently, Kostermans (1952) transferred these species to *Beilschmiedia*, a definite improvement, and published three additional species in 1957.

The Malagasy species are still poorly known, as flowers and/or fruits have not yet been collected of all published species. Nevertheless, two species groups can be recognized. One group has subopposite, glabrous leaves; tepals fused in a short floral tube, which is dehiscent in old flowers and leaves a circular scar at the base of the young fruit; and black young branches. The other group has alternate, usually pubescent leaves; tepals persisting in the fruiting stage, although they eventually become damaged and fall; and does not have black young branches that contrast with the gray older twigs.

The new species of *Beilschmiedia* described here belongs in the first group and differs from the other species in leaf and inflorescence characters.

***Beilschmiedia moratii*** van der Werff, sp. nov.

TYPE: Madagascar. Massif de Tsaratanana, basin of the Maevarano, between 1750 and 2000 m, SF (Capuron) 24985 (fl) (holotype, MO; isotype, P not seen). Figure 1.

Ex affinitate *Beilschmiediae oppositae* et *B. sary*; a *B. opposita* reticulatione elevata et foliis base obtusis vel ro-

tundatis, a *B. sary* foliis minoribus, basi obtusis vel rotundatis, et inflorescentia puberula recedit.

Tree, to 15 m tall. Twigs terete, glabrous, the young ones black, older twigs with gray, corky bark. Terminal buds glabrous. Leaves subopposite, coriaceous, 2.5–4 × 1.5–3 cm, broadly elliptic, shiny, base and tip obtuse to rounded, the margin often incurved, glabrous on both surfaces, lateral veins 4–7 on each side, but poorly differentiated from the tertiary venation, midrib weakly raised on both surfaces, lateral veins and lax reticulation prominently raised. Petioles 4–7 mm long, glabrous. Inflorescences axillary, paniculate, to 3.5 cm long, puberulous, especially toward the tip of inflorescence, the hairs wrinkled, ± erect, the flowers often with a glabrous bract with ciliate margin at their base, this ca. 2 mm long. Flowers depressed globose, a floral tube scarcely present, 3–4 mm wide and ca. 2 mm tall. Tepals 6, equal, sparsely puberulous, broadly elliptic to ovate, the margin thinner than the central part, the inner surface glabrous, the base fused, tepals dehiscent in old flowers and leaving a circular scar at base of the very young fruit. Stamens 9, 2-celled, the outer 6 broadly ovate, ca. 2 mm long, pubescent along margin, the cells large, introrse, filament very short, connective prolonged beyond the cells; inner 3 narrowly triangular, densely pubescent, 1.5–2 mm long, the cells lateral, 2 large, globose glands present at base of filaments, base of filaments of Whorls III and IV fused into a narrow, pubescent ring; staminodia of Whorl IV small, triangular, pubescent. Pistil glabrous, ovary turbinate, gradually narrowed into the short style. Fruit roundish, 3–3.5 cm diam.

*Beilschmiedia moratii* is known from the Massif de Tsaratanana and the summit of Anjanaharibe; the two flowering collections were made in November. This species is closely related to *B. opposita* and *B. sary*. The three species share subopposite leaves, black young twigs, and bases of the tepals united in a short floral tube, which is dehiscent in old flowers, leaving a circular scar at the base of the young fruit. *Beilschmiedia moratii* differs from *B. sary* in its smaller leaves with obtuse to rounded base and its puberulous inflorescences and flowers; from *B. opposita* it differs in its raised reticulation





Figure 1. *Beilschmiedia moratii* van der Werff. —A. Habit. —B. Leaves showing venation pattern. —C. Inflorescence. —D. Pistil and stamens.

of the leaves, obtuse to rounded leaf base, and erect hairs on the inflorescence. Stamens of Whorl III are fertile in *B. moratii* (or have at least well developed locelli), whereas these are probably staminodial in *B. sary* and *B. opposita*.

This species is named after P. Morat, Director of the Laboratoire de Phanérogamie of the Muséum National d'Histoire Naturelle in Paris, who collect-

ed this species and who has greatly stimulated studies of the flora of Madagascar.

*Paratypes.* MADAGASCAR. Tsaratanana, 2100 m elev., Morat 2284 (P); Antsiranana, summit of Anjanaharibe-Sud., Lewis et al. 1350 (MO, P, TAN).

*Ocotea* is represented on Madagascar by 30–35 species. It is readily recognized because it is, on



Madagascar, the only genus with four-celled stamens and a fruit seated in a cupule. Several species have very pronounced pit-domatia; domatia are not found in the other genera occurring on Madagascar. Although most species are now well understood, one complex consisting of species with glabrous leaves, without domatia and without inrolled leaf bases, needs to be resolved. Several names apply to this complex and it is unlikely that additional new species need to be recognized.

***Ocotea grayi*** van der Werff, sp. nov. TYPE: Madagascar. Toliara, Réserve Intégrale #11 (Andohahela), *van der Werff et al.* 12732 (holotype, MO; isotypes, B, G, GH, K, L, LE, MO, NY, P, PRE, QRS, TAN). Figure 2.

*Ocoteae trichophlebiae* affinis, sed foliis triplinerviis, domatiis ornatis, inflorescentiis et foliis majoribus recedit.

Tree, to 25 m tall. Twigs  $\pm$  terete, yellow-brown tomentellous when young, the indument wearing off with age. Terminal buds tomentellous. Leaves alternate, tripliveined, chartaceous, 9–19  $\times$  4–9 cm, elliptic or broadly elliptic, base acute or obtuse, apex acute or acuminate, lateral veins 3–5, the basal pair more strongly developed than the distal ones, upper leaf surface pubescent when young, soon becoming glabrous, sometimes with remnants of indument on midrib and lateral veins, midrib, lateral veins, and tertiary venation immersed; lower surface with a sparse to dense indument, hairs erect,  $\pm$  curled, indument denser along major veins and midrib, midrib, lateral veins, and tertiary venation clearly raised; domatia present, consisting of shallow pockets covered by a dense tuft of hairs. Petioles 0.8–1.5 cm long, with similar indument as twigs. Inflorescences (densely) pubescent, paniculate, axillary, to 12 cm long. Flowers creamy white or pale yellow. Tepals 6, pubescent on both surfaces, ca. 2 mm long. Stamens 9, 4-celled, 1 mm long, filaments pubescent; anthers glabrous, glands present at base of inner stamens, staminodia 3, stipitiform, pubescent. Ovary and inside of receptacle glabrous. Cupule deeply cup-shaped, to 2.5 cm wide, 1.5 cm high, fruit roundish, ca. 2 cm diam.

**Ecology.** Forests on eastern slopes, from Brickaville south to Ft. Dauphin, inland to Ranomafana and Fianarantsoa, up to 1000 m elevation.

**Flowers:** August–November (mostly September–October); fruits throughout the year.

*Ocotea grayi* is characterized by the presence of domatia, tripliveined leaves, erect indument on lower leaf surface, and its rather long inflores-

cences. Most collections placed in this species were previously identified as *Ocotea trichophlebia*. This latter species differs from *O. grayi* in its pinnately veined leaves, lack of domatia, and smaller leaves and inflorescences. *Ocotea trichophlebia* also occurs at higher elevations than *O. grayi*.

This species is dedicated to Bruce Gray, an excellent collector of Lauraceae and whose company I enjoyed on several field trips.

**Common names.** Varongirwimbakoka, Varongy, Varongy fotsy, Varongi mainty.

**Paratypes.** MADAGASCAR. Moramanga, route d'Anosibe, *Cours* 888 (P); Befotaka *Cours* 5333 (MO, P); Befotaka, *Decary* 4737 (P); Vondrozo, *Decary* 5231 (P); Vondrozo, *Decary* 5424 (P). Bassin de la Manampanihy, *Humbert* 6061 (P); Haute Vallée du Mandrare, *Humbert* 6673 (P); Ranomafana National Park, *Malcomber et al.* 1610 (MO, P, TAN); road Ft. Dauphin–Ranomafana, *McPherson & Rabevoitra* 14975 (MO, P, TAN). Bas Namorona, *Perrier de la Bathie* 6694 (P); Bas Namorona, *Perrier de la Bathie* 11837 (P); Bassin inférieure du Mangoro, *Perrier de la Bathie* 18235 (P); Bassin du Namorona, *Perrier de la Bathie* 4486 (P). Réserves Naturelles: Tamatave, *RN* 3196 (P); Behara, *RN* 3433 (P). Service Forestière: Fianarantsoa, *SF* 3182 (P); Benara, *SF* 3787 (P); Ambila-Lemaitso, *SF* 4896 (P); Folongoina, *SF* 5227 (P); Ranomafana, *SF* 5608 (P); Vohipeno, *SF* 6379 (P); Mananjary, *SF* 6688 (P); Nampohone, N of Ft. Dauphin, *SF* 6970 *Capuron* (P); Analolava, *SF* 7103 (P); Fort Carnot, *SF* 9678 (P); Fort Carnot, *SF* 10990 (P); Manakara, *SF* 19212 (MO, P); Fort Carnot, *SF* 19298 (MO, P); Fort Carnot, *SF* 19794 (MO, P); Manakara, *SF* 6542 (P); Andohahela, *van der Werff et al.* 12745 (MO, P, QRS, TAN).

***Ocotea longipedicellata*** van der Werff, sp. nov. TYPE: Madagascar. Canton Sahatavy, District Vavatenina, *RN (Rakotondramisa)* 11386 (holotype, P). Figure 3.

Inter species madagascarienses pedicellis longis, gracilibus et foliis, ramulis gemmisque terminalibus glabris distinguenda.

Shrub. Twigs terete, slender, glabrous. Terminal buds glabrous. Leaves alternate, chartaceous, elliptic or narrowly elliptic, 6–11  $\times$  2–3.5 cm, glabrous on both surfaces, the base acute, tip acuminate, upper surface smooth,  $\pm$  shiny, lateral veins 7–9, immersed or nearly so on upper surface, weakly raised on lower surface. Petioles glabrous, 6–10 mm long, flattened above. Inflorescences in axils of deciduous bracts at the tips of the twigs, glabrous, paniculate-cymose, 5–8 cm long, laxly flowered. Pedicels slender 1–1.5 cm long. Flowers glabrous on outside, the tepals spreading. Tepals 6, equal, 2–2.5 mm long, the inner surface with a few hairs near the base; stamens 9, 4-celled, the cells arranged in 2 rows, ca. 1.3 mm long, filaments about as long as anthers, inner 3 stamens with 2 glands at the base of the





Figure 2. *Ocotea grayi* van der Werff. —A. Habit. —B. Detail of lower leaf surface, showing domatia. —C. Part of inflorescence. —D. Flower. —E. Pistil and stamens.

filaments, pistil ca. 2 mm long, glabrous, ovary gradually narrowed into the style; receptacle deep, glabrous inside. Cupule cup-shaped, with entire margin, 1.5 cm wide, 0.8 cm high, pedicel scarcely thickened; fruit ellipsoid,  $2 \times 1.5$  cm.

*Flowers:* October–December.

This species is readily recognized by its glabrous condition, acuminate leaves, and the slender inflorescences with long-pedicelled flowers. These long pedicels are unique among *Ocotea* species in Mad-



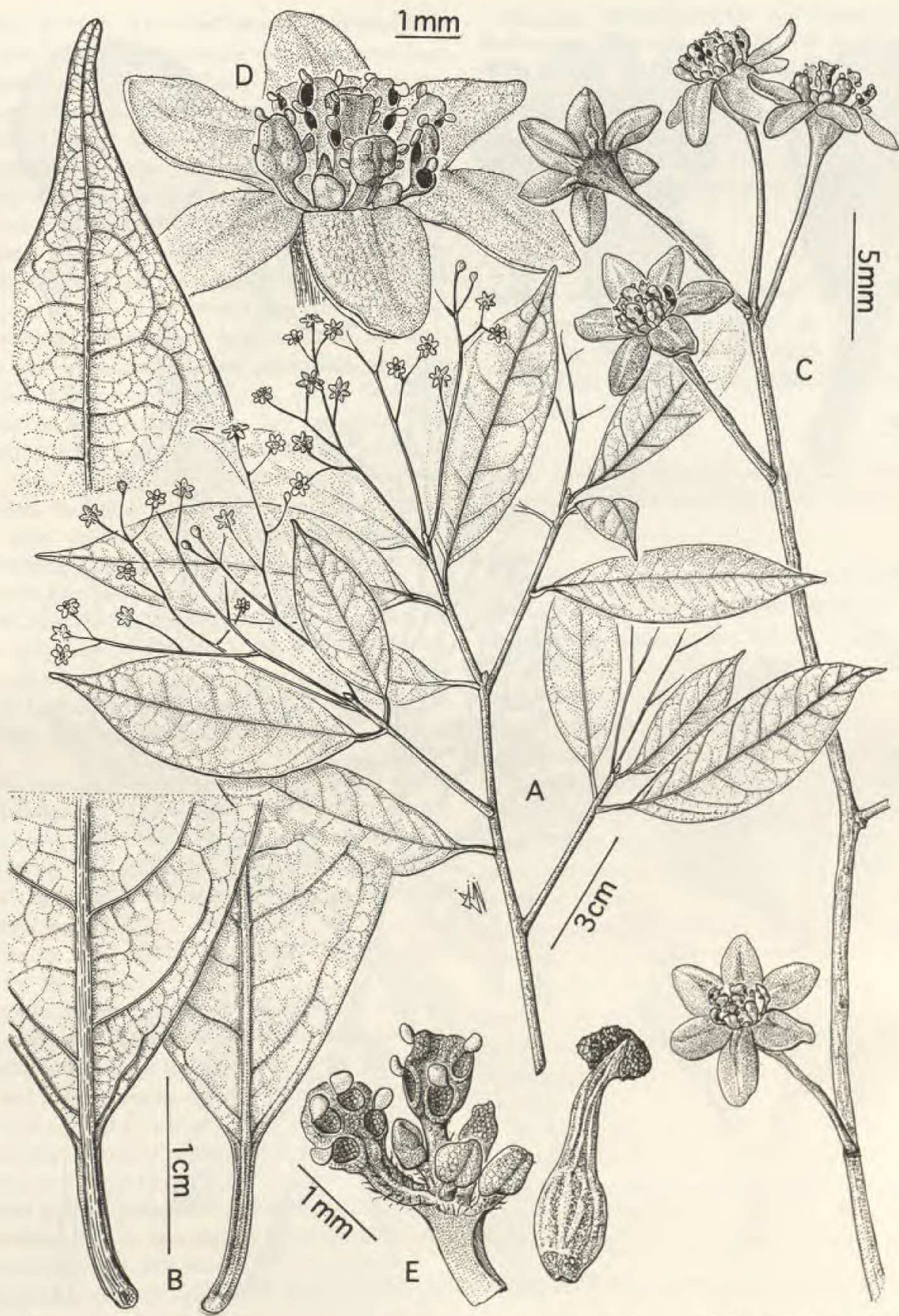


Figure 3. *Ocotea longipedicellata* van der Werff. —A. Habit. —B. Detail of leaves. —C. Inflorescence. —D. Flower. —E. Pistil and stamens on part of the receptacle.

agascar and are the main reason I describe this species, known from only two collections.

*Paratype.* MADAGASCAR. Province Toamasina, Réserve Naturelle Intégrale 3, Zahamena, *Randrianjanaka* 8 (MO).

***Ocotea malcomberi*** van der Werff, sp. nov.  
TYPE: Madagascar. Toliara, Réserve Intégrale #11 (Andohahela), *van der Werff et al.* 12756 (holotype, MO; isotypes, B, BR, G, GH, K, L, LE, NY, P, QRS, TAN, TNS, US). Figure 4.



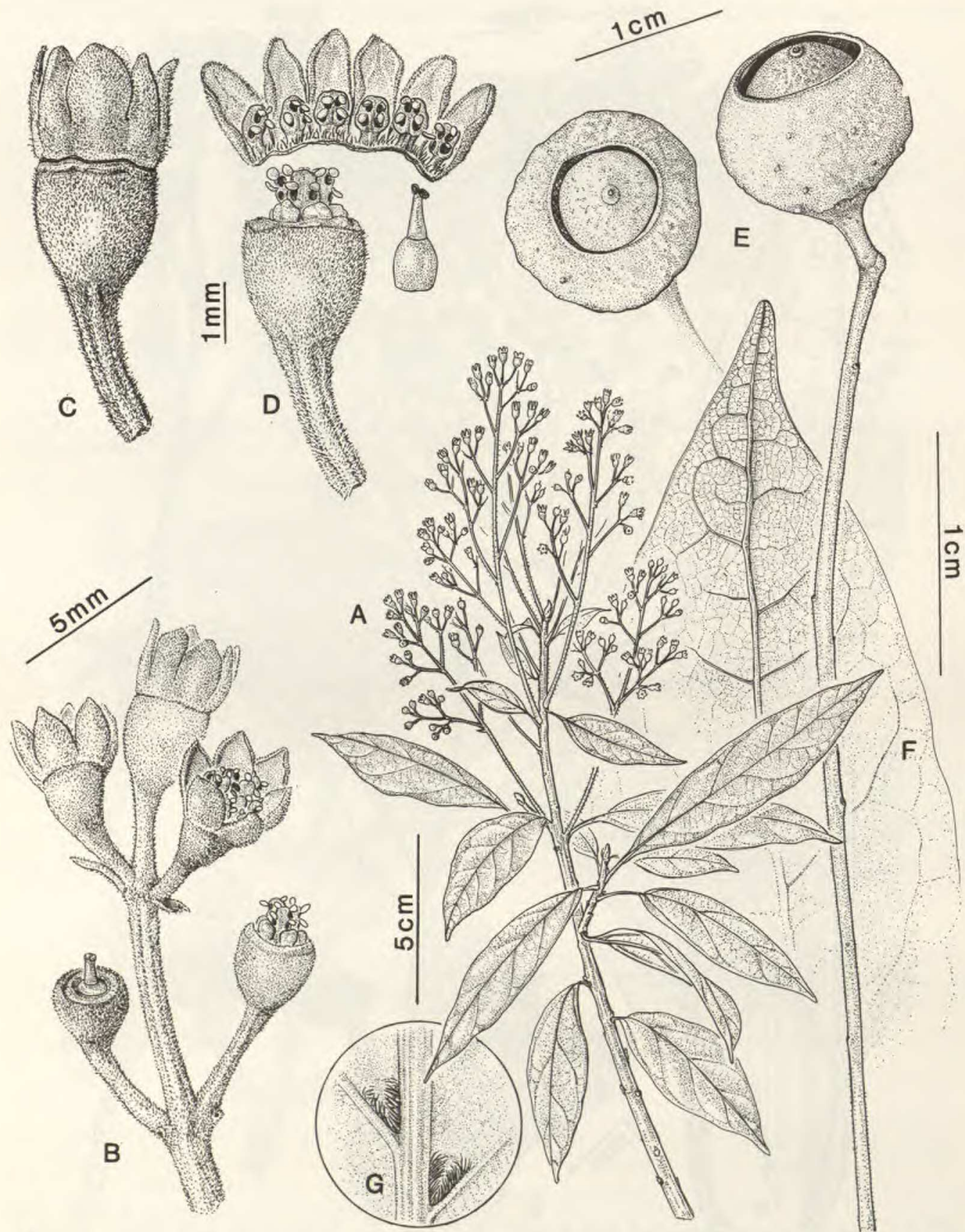


Figure 4. *Ocotea malcomberi* van der Werff. —A. Habit. —B. Part of inflorescence. —C. Old flowers showing abscission line of tepals. —D. Old flower showing inner stamens and united tepals with outer stamens. —E. Fruits. —F. Detail of leaf.

*Ocotea trichanthae* similis sed inflorescentibus longioribus, minus pubescentibus et domatiis inconspicuis recedit.

Trees, 20 m tall. Twigs terete or slightly angular,

when young covered with a very fine, gray indument, the hairs very short and individually scarcely visible, becoming glabrous with age. Terminal buds light brown-tomentellous. Leaves alternate, char-



taceous, 6–10 × 2.5–5 cm, (broadly) elliptic, base and apex acute, upper surface shiny, glabrous, lower surface dull, glabrous, but very young leaves pubescent, venation immersed on upper surface, midrib and lateral veins slightly raised on lower surface, lateral veins 4–6, domatia present, consisting of mostly shallow pockets with a fringe of hairs or entirely covered by hairs. Petioles 0.8–1.3 cm long, glabrous or minutely puberulous, usually darker colored than the twigs. Inflorescences 5–13 cm long, in axils of deciduous bracts near the apices of twigs or along short, leafless shoots, but rarely in axils of normal leaves, paniculate, gray-pubescent. Flowers pale yellow or white. Tepals 6, pubescent both surfaces, ca. 1.3 mm long, connected at their base and in old flowers falling off as a ring, together with the stamens. Stamens 9, 4-celled, the outer 6 0.8 mm long, the filaments very short or almost absent, anthers dorsally with some hairs; inner 3 stamens ca. 1.1 mm long, with 2 glands attached near the base, staminodia 3, stipitiform, pubescent. Receptacle deep, glabrous inside, ovary and style each 1 mm long, with a few hairs on upper part of ovary and along style or glabrous. Cupule deeply cup-shaped, 2 cm wide, 1.4 cm high, fruit ellipsoid, 2.2 × 1.6 cm.

This species is restricted to the southeast corner of Madagascar (Andohahela, Col du Maningotry, Ifarantsa) between 300 and 600 m elevation. A few collections, including the type, were made along roads, suggesting this species tolerates disturbed habitats quite well.

*Flowers:* August–October; *fruits:* January, September, November.

*Ocotea malcomberi* has been confused with *O. trichantha* but differs in its longer inflorescences (usually longer than the surrounding leaves), shallow and inconspicuous domatia (sometimes domatia are only present in a few leaves), and by the shorter, sparser indument of the inflorescences (surface is usually clearly visible). The petioles of *O. malcomberi* are not infrequently darker than the twigs, a condition that is very rare in *O. trichantha*. *Ocotea malcomberi* is only known from the southeast of Madagascar, while *O. trichantha* has been reported from the southwest part (Massif d'Analavelona, Isalo). Both species have their inflorescences in axils of deciduous bracts, an uncommon character of Malagasy *Ocoteas*. Another uncommon character are the basally connate tepals, which fall off as a unit in older flowers.

This species is named after Simon Malcomber, an excellent collector of Malagasy plants.

*Common names.* Varongy fotsy, Varong mavokely.

*Paratypes.* MADAGASCAR. Andohahela Reserve, McPherson 14422 (MO, P, TAN); Col de Maningotry, McWhirter 230 (K, P); Col du Maningotry, Rabevohitra 2242 (MO). Réserves Naturelles: Bahara, RN7457 (P). Service Forestière: Col du Maningotry, SF (Capuron) 8509 (P); Ivorona-Ifarantsa, SF 15625 (MO, P); Ifarantsa, SF 15630 (P); Col du Maningotry, SF (Capuron) 28346 (MO, P); Col de Maningotry, Ifarantsa, sans collecteur, 3-R-57 (P).

***Ocotea oligantha*** van der Werff, sp. nov. TYPE: Madagascar. Centre. Massif de Vohibe-Antoatra, au S-SE d'Ambositra entre 1600 et 1869 m d'alt. SF (Capuron) 23856 (holotype, MO; isotype, P). Figure 5.

Inter species madagascarienses gemmis terminalibus inflorescentiisque glabris et foliis glabris, domatiis magnis ornatis, recedit.

Small tree. Twigs terete, glabrous or with some scattered hairs. Terminal buds glabrous. Leaves alternate, subcoriaceous, 3.5–6 × 2–3.5 cm, broadly elliptic or elliptic, glabrous on both surfaces, venation immersed on both surfaces, base obtuse, acute or rounded, tip acute, lateral veins 3–4, domatia present, consisting of deep pits, mostly in axils of lateral veins, but sometimes also along lateral veins. Petioles glabrous, 0.4–0.8 cm long. Inflorescences in axils of deciduous bracts or normal leaves, glabrous, 2–3 cm long, with 7 or fewer flowers. Tepals 6, glabrous outside, sparsely pubescent inside, 2–2.5 mm long. Stamens 9, 4-celled, glabrous or with few hairs at base of filament, glands of inner stamens attached above base of filament, staminodia 3, glabrous. Ovary and inside of receptacle glabrous. Fruits unknown.

This species is only known from the type collection made in the Massif du Vohibe-Antoatra, S-SE of Ambositra, between 1600 and 1870 m altitude.

*Flowers:* December.

*Ocotea oligantha* belongs to a small group of montane species with small leaves and pit-domatia. Characteristic for this species is the combination of glabrous terminal buds, glabrous flowers, pinnately veined leaves with domatia not solely in axils of the basal lateral veins, and glabrous, few-flowered inflorescences. Although the terminal buds are glabrous, the young twigs immediately below the buds are somewhat pubescent; as a rule, Lauraceae with glabrous terminal buds also have glabrous twigs.





Figure 5. *Ocotea oligantha* van der Werff. —A. Habit. —B. Leaves showing domatia on upper and lower surface. —C. Flower. —D. Pistil and stamens.

***Ocotea sambiranensis*** van der Werff, sp. nov.  
 TYPE: Madagascar. Prov. Antsiranana, Massif du Manongarivo, above the village of Ambodisakoana, *van der Werff & McPherson 13502* (holotype, MO; isotypes, GH, K, L, LE, P, PRE, TAN). Figure 6.

Ob statum glabrum et folios sine domatiis *Ocoteam longipedicellatam* et *O. madagascariensem* tangit, ab *Ocotea longipedicellata* pedicellis brevioribus, ab *O. madagascariense* foliis acutis recedit.

Small tree, 5–6 m tall. Twigs terete or angular, glabrous. Terminal buds glabrous. Leaves alternate,



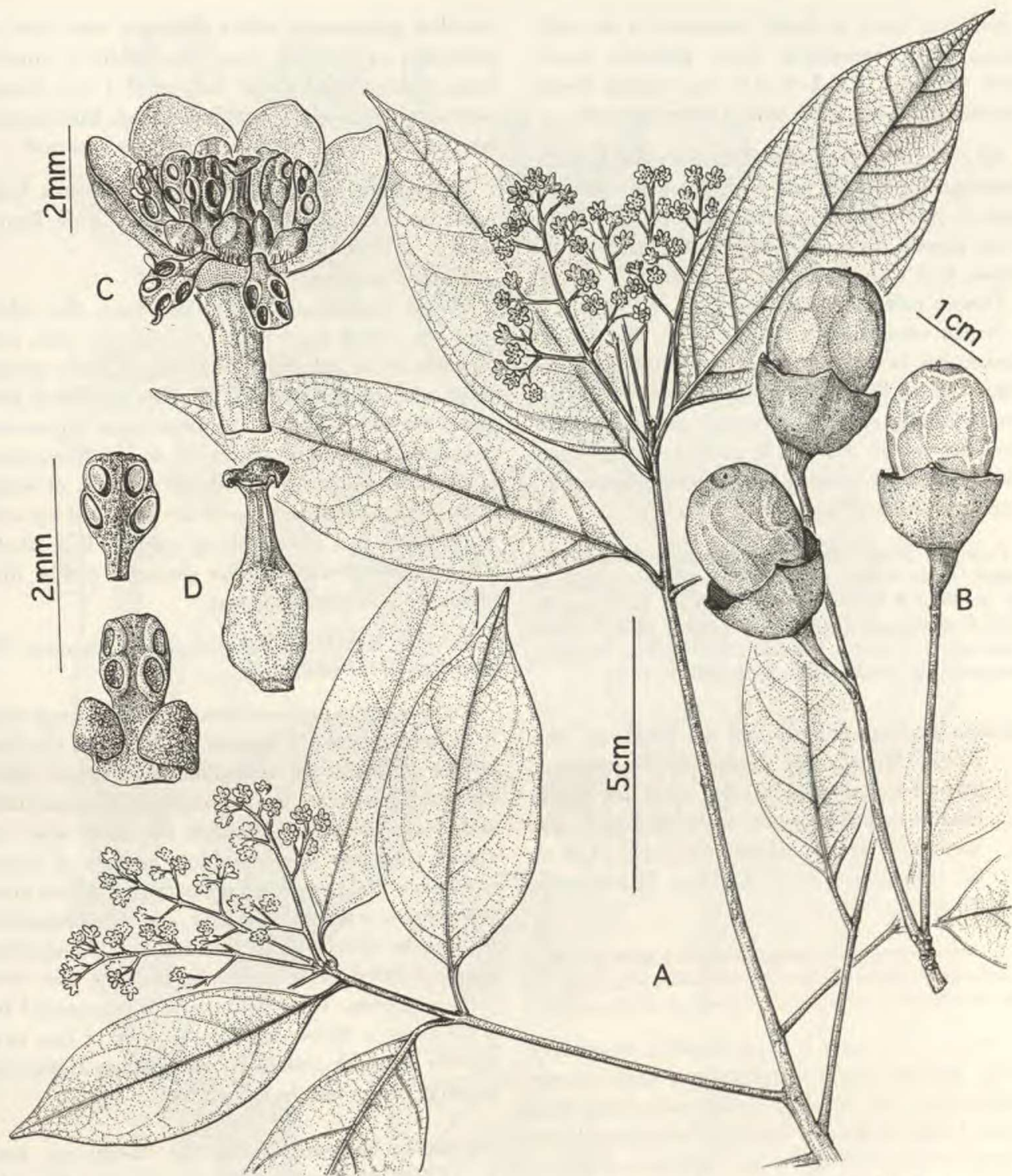


Figure 6. *Ocotea sambiranensis* van der Werff. —A. Habit. —B. Fruits. —C. Flower. —D. Pistil and stamens.

(narrowly) elliptic or slightly ovate, 8–16 × 3–7 cm, glabrous, firmly chartaceous, base acute or rarely obtuse, apex finely acute or acuminate, lateral veins weakly developed, in the distal half of laminae difficult to separate from tertiary veins, 7–11 on each side, secondary and tertiary venation raised on lower leaf surface and sometimes less so on upper leaf surface; domatia absent. Petioles glabrous, canaliculate, 7–13 mm long. Inflorescences in axils of cataphylls, usually grouped at tips of branches or infrequently along short shoots, glabrous, 3–7 cm long, the smaller ones racemose, the

larger ones with the lower branchlet racemose or cymose. Pedicels 3–6 mm long. Flowers white, fragrant, tepals ± spreading at anthesis, 6–7 mm diam. Tepals 6, equal, ca. 2 mm long, glabrous outside, minutely puberulous inside, but with some longer hairs near the base, stamens 9, 4-celled, the outer 6 ca. 2 mm long, the filaments broad, a little shorter than the anthers, glabrous, anther cells introrse, arranged in 2 rows; inner 3 stamens ca. 2 mm long, lower 2 anther cells extrorse, upper 2 lateral, filaments at base with 2 elliptic glands, staminodes very small, pubescent; pistil glabrous,



3 mm long, ovary gradually narrowed in the style, stigma large, receptacle deep, glabrous inside. Fruit ellipsoid,  $2.5\text{--}3 \times 1.5$  cm, cupule deeply cup-shaped, 2 cm wide, with 6 lobes or teeth.

All collections of *O. sambiranensis* come from the Manongarivo Massif, east of Ankaramy, and were made in rather dry, evergreen forest on the summit of the massif. It was not found in the forest on the slopes. It is a small, understory tree.

*Flowers and fruits*: October.

*Ocotea sambiranensis* is one of the few *Ocotea* species that is vegetatively glabrous. The other glabrous species are *O. madagascariensis*, which differs in having obtuse leaf apices, and *O. longipedicellata*, which differs in having much longer pedicels and the scarcely raised or immersed reticulation of the leaves.

*Paratypes*. MADAGASCAR. Antsiranana, Manongarivo Massif, above village of Ambodisakoana, elev. 1100 m, *van der Werff & McPherson* 13472 (MO, P, TAN), *van der Werff & McPherson* 13490, 13501, 13523 (MO, P, TAN); Antsiranana, Réserve Spéciale Manongarivo, Bekolosy, *Malcomber & Rakotomalala* 2604 (MO, P, TAN).

***Ocotea tsaratananensis*** van der Werff, sp. nov.

TYPE: Madagascar. Massif du Tsaratanana, sylve à lichens sur la crête entre les hautes bassins de la Maeverano et du Sambirano, aux bords de l'Andohanisambirano, vers 2450 m, *SF (Capuron)* 27010 (holotype, MO; isotype, P). Figure 7.

A congeneribus foliis parvis, domatiis magnis praeditis et indumento dense tomentello ramulorum juniorum, inflorescentiarum et gemmarum terminalium distinguenda.

Tree, to 10 m (said to reach 15–20 m in valleys). Twigs angular, brown tomentellous when young, glabrescent with age, with conspicuous scars from fallen leaves or bracts. Terminal buds densely tomentellous. Leaves alternate, coriaceous,  $3\text{--}5.5 \times 2\text{--}2.5$  cm, (broadly) elliptic, base acute, obtuse or rounded, tip obtuse or acute, glabrous on both surfaces or with a few hairs along midrib on lower surface, midrib and lateral veins immersed on both surfaces, reticulation weakly raised on both surfaces, lateral veins 3–4; domatia present, consisting of deep pits in axils of basal lateral veins, sometimes smaller pit-domatia present in axils of distal veins, margin of domatia glabrous. Petioles 0.7–1.0 cm long, with similar indument as twigs or, on older twigs, darker in color than the twigs. Inflorescences to 5 cm long, densely pubescent, mostly in axils of deciduous bracts. Tepals 6, pubescent at base, becoming glabrous toward the tip, inner surface glabrous or nearly so, ca. 2 mm long. Stamens 9,

4-celled, glabrous or with a few hairs near base of filaments, ca. 1.5 mm long, staminodia 3, stipitiform, pubescent. Cupule flat, ca. 1.1 cm diam., pedicel strongly swollen, 0.8 cm long; fruit roundish,  $1.6 \times 1.4$  cm, almost completely exserted.

This species is known from two collections, both made on the upper slopes of the Massif de Tsaratanana, at 2300–2500 m elevation.

*Flowers and fruits*: November.

*Ocotea tsaratananensis* differs from the other montane, small-leaved *Ocotea* species with pit-domatia in its tomentellous terminal buds, young twigs, and inflorescences. The other species in this group are either glabrous or have some appressed pubescence, but never the erect, dense pubescence of *O. tsaratananensis*. The large number of scars from fallen leaves and bracts are also striking and suggest this is a slow-growing species. It is likely that on trees growing in more sheltered places, this character is less pronounced.

*Paratype*. MADAGASCAR. Massif du Tsaratanana, *SF (Capuron)* 27051 (MO).

*Potameia* is a genus endemic to Madagascar and it includes about 20 species. It is one of the few genera of Lauraceae with dimerous flowers; other dimerous genera are the neotropical *Chlorocardium* and Asian *Syndiclis* (although the latter also includes trimerous species). Most species of *Potameia* have four two-celled stamens, but in two species there is a reduction to four one-celled stamens. In the new species described below the reduction has proceeded even further: it has only two one-celled stamens. The reduction is accompanied by a decrease in flower size; the flowers of this new species are, with a diameter of less than 1 mm, the smallest in the family.

***Potameia micrantha*** van der Werff, sp. nov.

TYPE: Madagascar. Prov. Toamasina, Masoala Peninsula, near village of Ambanizana, south trail, elev. 25–200 m, *van der Werff et al.* 12777 (holotype, MO; isotypes, B, BR, G, GH, K, L, LE, NY, P, PRE, QRS, TAN, TNS, US). Figure 8.

A congeneribus staminibus duobus antherisque 1-locellatis recedit.

Tree, to 20 m tall. Twigs terete, light brown-tomentellous, with age (dark) brown-tomentellous and glabrescent, 2–3 mm diam. 5 cm below the tip, the branching pattern resembling that of *Combretum*. Terminal buds densely tomentellous. Leaves alternate,  $\pm$  clustered near the tips of the branches, chartaceous, (broadly) elliptic,  $9\text{--}14 \times 3\text{--}6$  cm,



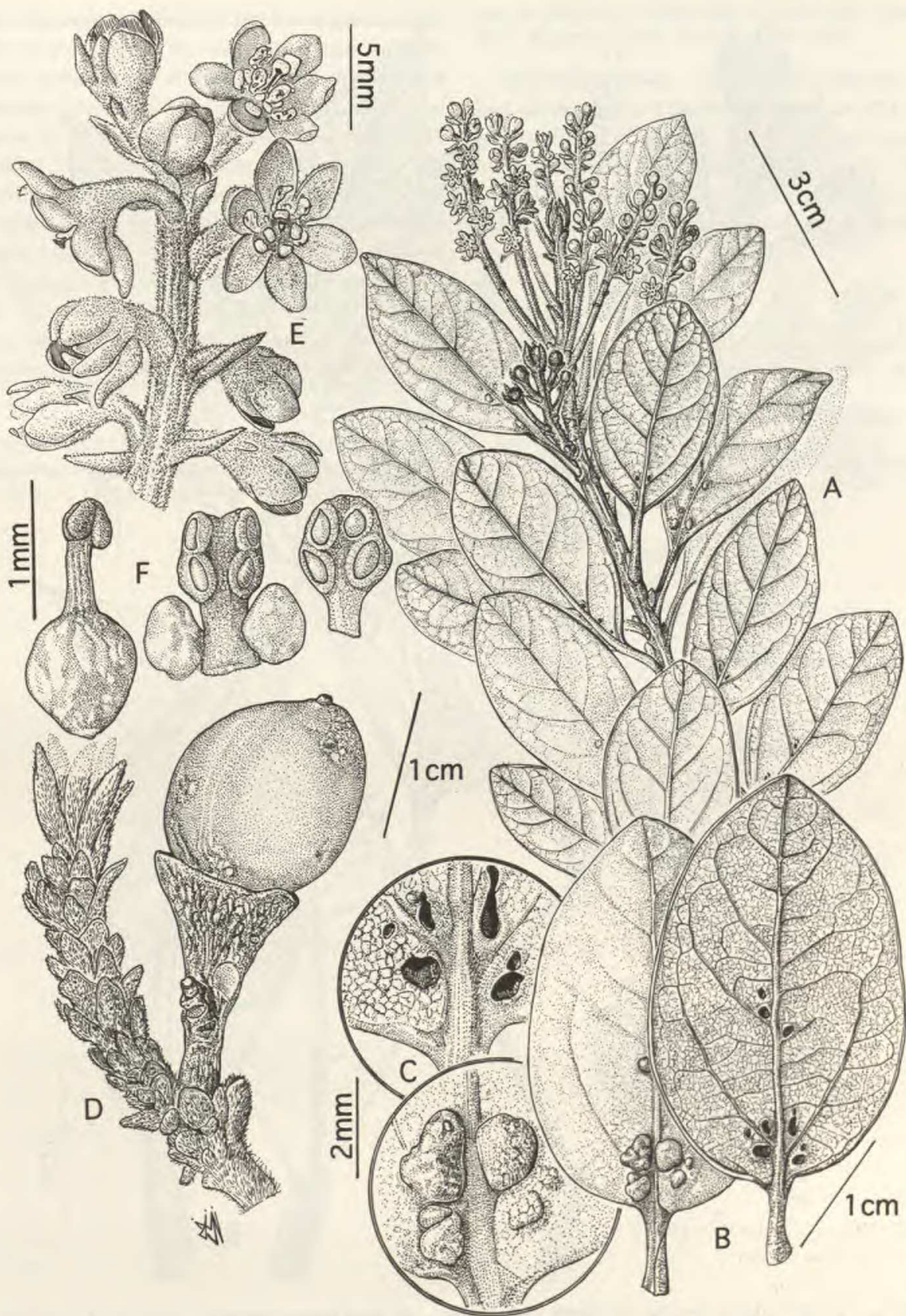


Figure 7. *Ocotea tsaratananensis* van der Werff. —A. Habit. —B. Upper and lower leaf surfaces showing venation and domatia. —C. Details of leaves showing domatia. —D. Fruit with young shoot, showing bracts. —E. Part of inflorescences. —F. Pistil and stamens.

base acute or obtuse, apex acute, rarely obtuse, upper surface glabrous except for the pubescent basal part of midrib, lower surface with scattered erect hairs, the main lateral veins and midrib brown tomentellous; venation  $\pm$  immersed on upper surface,

midrib and main lateral veins clearly raised on lower surface, tertiary venation slightly raised; lateral veins 7–11 on each side. Petioles 7–10 mm long, densely tomentellous. Inflorescences axillary, paniculate, to 7 cm long, many-flowered, the main





Figure 8. *Potameia micrantha* van der Werff. —A. Habit. —B. Leaf bases, showing venation and indument. —C. Detail of inflorescence. —D. Dissected flower.

axis tomentellous, but indument becoming sparser on minor axes, flowers glabrous; bracts along main axis densely tomentellous; smaller bracts strongly ciliate, otherwise glabrous; pedicels 0.6–0.8 mm long, but becoming larger in young fruit, glabrous. Flowers glabrous, 0.6–0.8 mm diam.; tepals 4, equal, minute; stamens 2, 1-celled, the cell in-

trorse-apical; 2 staminodia represented by tufts of hair at the base of the tepals; glands not seen; ovary glabrous, ovoid; receptacle cup-shaped. Fruits (narrowly) ellipsoid, 3.5 × 1.3 cm.

*Flowering:* October–November.

Vegetatively, *Potameia micrantha* is character-



ized by the erect indument of the lower leaf surface and the acute leaves. The only other species with a similar indument is *P. velutina*, but this species has obovate leaves with a rounded apex. Also, the indument of *P. velutina* is shorter than that of *P. micrantha*. The flowers of *P. micrantha*, with only two fertile, one-celled stamens, are unique in the genus and even in the family. *Potameia micrantha* has been collected several times at low elevations on the Masoala Peninsula, at one place growing  $\pm$  100 m inland from the beach. *Potameia* has, in general, small flowers; *P. micrantha* has the smallest flowers I have seen in Lauraceae and fully deserves its epithet.

*Paratypes.* MADAGASCAR. Prov. Toamasina, Masoala Peninsula near village of Ambanizana, *van der Werff et al.* 12797 (MO, P, QRS); Prov. Toamasina, Nosy Mangabe,

*van der Werff et al.* 12836 (MO, P, QRS); Prov. Toamasina, Nosy Mangabe, *Schatz & Miller* 2499 (MO).

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